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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,114	09/20/2001	Andrew Bartlett	MCA-460 PC/US	4663
25182 7590 11/27/2007 MILLIPORE CORPORATION 290 CONCORD ROAD BILLERICA, MA 01821			EXAMINER MENON, KRISHNAN S	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 11/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/937,114	<b>Applicant(s)</b> BARTLETT ET AL.	
	<b>Examiner</b> Krishnan S. Menon	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,5-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,5-8 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

Claims 2,5-8, and 10 are pending as amended on 3/20/07 in the RCE of 10/25/07.

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2,5-8 and 10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 4 of copending Application No. 10/805,032. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of '032 application recite the same limitation as in the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 2,5-7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over GB 2,302,042 A.

GB teaches a filtration device having filter layers and screen layers, filter layers and screen layers having openings for inlets and outlets as claimed, with the openings having thermoplastic seals integrally formed (page 7 lines 9-15), the seals extending at least 0.001, 0.002, or 0.005 from the surfaces of the screens, and from the surface of the filters, all as claimed: see abstract, 3<sup>rd</sup> paragraph of page 1; page 2, lines 5-35; page 3, lines 1-12; and page 7, lines 9-15 and 20-33. Since the seal material is heat-sealed and/or penetrates the diffusion layer (mesh screen), the thickness of the seal layer extending from each screen layer would be greater than the thicknesses claimed. Such penetration would show that the seal inherently forms through the layers. The seal taught by the reference is a copolymer ethylene-vinyl acetate (EVA), which is a thermoplastic elastomer. Applicant lists EVA as one of the preferred materials for the seal in the specification.

There are three questions raised by the applicant traversing this rejection.

(1) Is EVA copolymer a thermoplastic elastomer as claimed? The answer is yes, see the web page copied below from << [http://en.wikipedia.org/wiki/Ethylene-vinyl\\_acetate](http://en.wikipedia.org/wiki/Ethylene-vinyl_acetate) >>, explaining the structure of EVA. US Patents 4,324,866 and 6,262,137

describe EVA as thermoplastic elastomer. Pramanik, et al, in Journal of Material Science Letters describe EVA as a thermoplastic elastomer, depending on the vinyl acetate content.

(2) Does the reference teach heat sealing EVA to the mesh? The answer is, again, yes. The above cited lines as well as the lines 15-22 shows evidence that it is. There is no reason for the reference to teach that the EVA has a lower melting/softening point, and that it penetrates the diffusion layer, if it is not heat sealed.

(3) Does the reference teach that EVA penetrate through the spacer layers?  
YES. See the lines captured from the reference, pages 6 and 7:

"The diffusion layer in such an embodiment is preferably a fibrous nonwoven web or a polymeric or metallic mesh, and the diffusion layer is further preferably partially embedded in the copolymer positioned between the membrane and the support material."

The paragraph at page 7, lines 21-34 describes formation of feed and permeate holes through the filtration media and diffusion layers (applicant's feed screen is a diffusion layer). The copolymer (EVA) is "... positioned around each fluid pathway, e.g., around a feed hole through a diffusion layer, so as to avoid contamination between the various fluid streams". This means that the copolymer seals the diffusion layer around the hole through its thickness, or it penetrates through the diffusion layer at the hole edges. See the following hand-drawn graphics to prove the point that the copolymer has to penetrate/go through the diffusion layer completely to form the seal:

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## Ethylene-vinyl acetate

From Wikipedia, the free encyclopedia

**Ethylene vinyl acetate** (CAS# 24937-78-8, also known as **EVA** or sometimes simply as "acetate") is the copolymer of ethylene and vinyl acetate. The weight percent vinyl acetate usually varies from 10 to 40% with the remainder being ethylene.

It is a polymer that approaches elastomeric materials in softness and flexibility, yet can be processed like other thermoplastics. The material has good clarity and gloss, barrier properties, low-temperature toughness, stress-crack resistance, hot-melt adhesive and heat sealing properties and resistance to UV radiation. EVA has little or no odor and is competitive with rubber and vinyl products in many electrical applications.

EVA foam is used as padding in equipment for various sports such as ski boots, hockey, boxing, and mixed martial arts.

EVA is also used in biomedical engineering applications as a drug delivery device. The polymer is dissolved in an organic solvent (e.g., methylene chloride). Powdered drug and filler (typically an inert sugar) are added to the liquid solution and rapidly mixed to obtain a homogeneous mixture. The drug-filler-polymer mixture is then cast into a mold at -80 degrees and freeze dried until solid. These devices are used in drug delivery research to slowly release a compound over time. While the polymer is not biodegradable within the body, it is quite inert and causes little or no reaction following implantation.

Hot glue sticks are usually made from EVA, usually with additives like wax and resin. EVA is also used as a clinginess-enhancing additive in plastic wraps.

EVA is typically used as a shock absorber in tennis shoes, for example. EVA can be recognized in many crocs brand shoes and accesories, in the form of a foam called crocslite.

It is also used in the photovoltaics industry as an encapsulation material for silicon cells in the manufacture of photovoltaic modules.

EVA is one of the materials popularly known as 'expanded rubber' or 'foam rubber'.

### External links

[\[edit\]](#)

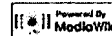

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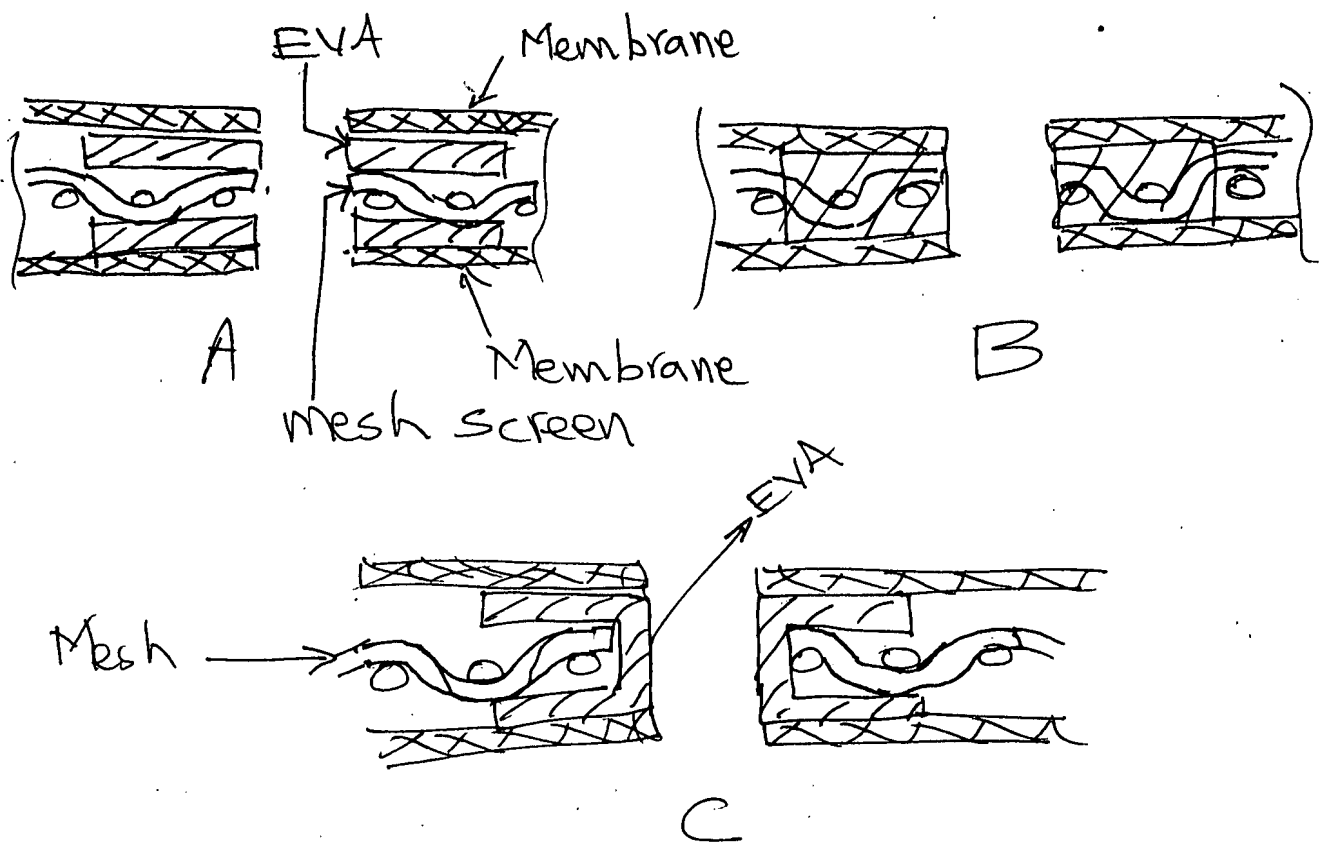
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Hand-drawn sketches showing how the Examiner understands the teaching of the reference GB-230242-A: In figure A, the EVA layer is only placed on the top and bottom surfaces of the feed-screen layer around a permeate passage hole, in which the feed would leak into the permeate passage through the screen mesh. In figure B, EVA penetrates through the mesh of the screen. In figure C, the EVA penetrates through the hole around the edges of the screen. In both B and C, there will be no leak. Both figure B and C read on applicant's claims. The Examiner submits that the GB reference implies the structure in either of Figures B or C, or at least, it would be obvious to one of ordinary skill in the art.

With respect to the applicant's remarks about the "excellent adhesion and compliance characteristics" taught by the reference at page 7, line 35 to page 8, line 7, it has to do with adhesion of EVA to the diffusion layer and also to the other layers when heat sealed. Moreover, even if the reference does not explicitly teach heat sealing, it is implied, and it is also well known and would be obvious to one of ordinary skill in the art that EVA is used as a heat-sealing component. In addition, the claim language does not require that it is heat sealed; it only requires that EVA is penetrated through the mesh layer.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2,5-8 and 10 are rejected under 35 USC 103(a) as unpatentable over Rogemont et al (US 4,701,234) in view of GB 2 302 042 A and/or Towe et al (US 6,235,166)

Rogemont teaches interposed sealed support of permeable membranes with a permeable mesh comprising plurality of openings in a screen having uniform thickness, one or more ports and integral gasket of thermoplastic elastomer with gasket around the ports and extending beyond the screen surfaces as claimed – see abstract, column 1



lines 15-52, column 3 lines 20-30, column 4 lines 28-33 and figures. The extension of the gasket above the mesh falls within the range claimed in claims 5-8. See column 4 lines 28-35. The reference teaches membrane stacks for microfiltration, ultrafiltration, gas separation, etc., see column 1 lines 5-12.

The teaching of the reference differs in the "thermoplastic elastomer" as the seal in claims 2 and 5-8. Claim 1 recites a filtration device comprising one or more filter layers, with the filter as having one or more openings around which a fluid tight seal is formed by an integral seal that is formed through the filter, with thickness greater than the filter, and made of an elastomer. Claim 10 recites a filtration module formed by stacks of layers of membrane and screen material with the seal around the ports or holes. GB teaches a thermoplastic elastomer (ethylene vinyl acetate) seal around the holes in place of other seal materials in page 7 lines 9-15 and 20-33. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of GB in the teaching of Rogemont because GB teaches that the thermoplastic used requires low extractables (page 1 lines 22-34), and that the layers can be sealed together as one integral body (page 7 lines 20-33) leading to high quality devices (paragraph linking pages 7 and 8).

Towe teaches sealing the edges of a plastic mesh spacer with thermoplastic elastomer, wherein the thermoplastic elastomer is molded around the plastic mesh (insert-molding), in a similar fashion, with the mesh at least partially embedded into the thermoplastic, as claimed for providing ports for fluid passage – see abstract, figure 2a and column 6, lines 5-20. It would be obvious to one of ordinary skill in the art at the

time of invention to use the teaching of Towe in the teaching of Rogemont for forming the seal using a thermoplastic elastomer in place of the silicone used by Towe because the seal can be made integral by injection molding and thus help mass production as taught by Towe. It would also be obvious to combine these references for a predictable outcome: See *KSR Int'l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1732, 82 USPQ2d 1385, 1390 (2007). "it is commonsense that familiar items have obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle". "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results."

### ***Response to Arguments***

Applicant's arguments filed 3/20/07 have been fully considered but they are not persuasive.

Arguments about the GB reference: these were addressed in the previous office actions as well as in the rejection above.

Argument about Rogemont in view of GB: motivation to combine is clearly stated in the rejection. Applicant's reasons explaining why one of ordinary skill in the art would not combine the references is not persuasive. First of all, EVA is a thermoplastic elastomer because it has both thermoplastic and elastomeric characteristics, as shown with evidence above. Secondly, applicant's explanation of the heat used to polymerize the silicone would cause to melt and flow uncontrollably is not convincing; one would

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obviously have the knowledge and capability to control the heat to process the EVA;  
EVA is a well known hot-melt.

***Indication of Allowable Subject Matter is Withdrawn***

The Examiner regrets suggesting allowability based on amending the claims with the composition of the thermoplastic elastomer Santoprene® in view of the Towe reference and applicant's submission of the details of Thermoplastic Elastomer as being well known in the art. Towe teaches the use of thermoplastic elastomers, specifically including thermoplastic vulcanizates and thermoplastic elastomeric olefins (see Towe, column 6, lines 5-20). Santoprene® is described as a thermoplastic vulcanizate (Remarks, at page 5). Therefore, the suggested allowability of the claims based on amendment to include the composition of Santoprene® is hereby withdrawn.

Please note that the Examiner suggested reciting the chemical composition of Santoprene® in the claim because Santoprene® is a registered trade mark. Examiner had advised the applicant to also provide evidence that Santoprene® has the structure claimed, if such structure was not originally presented in the specification, so that the disclosure is complete. Applicant's disclosure as originally filed does not contain any details of compositions of the thermoplastic elastomers used, other than the trade name Santoprene®.

Also please note about submission of evidences: literature evidences must be submitted in an IDS according to 37 CFR 1.97 and 1.98 so that they are properly

entered in the application file if applicant intends to appeal. The Board may not entertain evidences that are not submitted in an IDS or 892.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krishnan S Menon  
Primary Examiner  
Art Unit 1797